



COMDTINST 4105.9
5 JUL 1995

COMMANDANT INSTRUCTION 4105.9

Subj: MANPOWER AND PERSONNEL (M&P) AND TRAINING AND TRAINING
SUPPORT (T&TS) AS INTEGRATED LOGISTICS ELEMENTS

- Ref:
- (a) Systems Acquisition Manual (COMDTINST M4150.2 (series))
 - (b) Acquisition and Management of Integrated Logistics Support (ILS) for Coast Guard Systems and Equipment (comdtinst 4105.2)
 - (c) Integrated Logistics Support Plan (ILSP) Development and Management Responsibility (COMDTINST 4105.1)
 - (d) Logistic Support Analysis (COMDTINST 4105.3)
 - (e) Contingency Preparedness Planning, Vol. II (COMDTINST M3010.12 (series))
1. **PURPOSE.** This instruction addresses two Integrated Logistics Support (ILS) elements, and provides direction to both major and minor acquisition project managers. Two of the ten elements of ILS are discussed. Support program manager are required to provide guidance to the project manager. The term guidance means active support be given to the project manager, including: a) participation in the various matrix groups that may be established, b) a concerted effort to ensure appropriate information is exchanged between the parties and c) acceptance of joint responsibility to insure the platform, system or equipment is supported throughout its life cycle.
2. **ACTION.** Commanders of maintenance and logistics commands chiefs of offices shall ensure that the objectives and guidance provided in this instruction are followed.

3. **DIRECTIVES AFFECTED.** This instruction affect no existing directive. It amplifies and supports all references cited above.
4. **BACKGROUND.** Human Systems Integration (HSI) consists of six areas, which are: a) manpower (number and type of billets), b) personnel (skills and qualifications), c) training, d) system safety, e) health hazards and f) human factors engineering. Enclosure (1) is provided for information purposes, and briefly describes the safety, health and human factors programs. Commandant (G-KSE) provides guidance in the areas of health and safety. The appropriate engineering discipline (i.e., G-ENE, G-ECV, G-EAE or G-TES) provides guidance in the area of human factors engineering. These issues are closely integrated with Manpower, Personnel and Training (MPT) issues and must be addressed concurrently. This instruction specifically addresses manpower, personnel and training, and training support issues required to maintain and support a platform or system. The Chief of Staff, the sponsor, the Office of Personnel and Training, the office of Health and Safety and other support program managers all have interests in the final human interface system. Only through an integrated and iterative approach can these varied interests be met when acquiring a new platform, system or equipment. Much of this integration is accomplished when designing the ILS support package,
5. **RESPONSIBILITIES AND GUIDANCE.** This instruction applies to major and non-major acquisition projects. This includes major modifications or enhancements to existing systems or equipment where a "project manager" is designated by the Chief of Staff or any official listed in the action paragraph above. Project managers will tailor the following guidance to fit the requirements of the acquisition project and reference (a). Reference (a) also provides time requirements and a sample milestone chart. Reference (b) outlines requirements for acquiring and managing M&P and T&TS as they pertain to ILS. Reference (c) provides guidance on the development of the Integrated Logistics Support Plan (ILSP) where much of the M&P and T&TS planning will be documented, and reference (d) provides information on analytical techniques. The following provides specific direction for the project manager and various support program managers required to provide guidance.
 - a. **Manpower.** Manpower refers to the number of military billets and civilian positions needed for the operation, maintenance and support of platforms, systems and equipments. Commandant (G-CPA), the sponsor, and Commandant (G_REP) provide additional guidance regarding manpower. Commandant (G-Pd-5) participates in the acquisition process to ensure human resource requirements are included in all phases of the acquisition process. Commandant (G-Pd-5) also provides

guidance on Manpower, Personnel and Training (MPT) and insures MPT analyses are included early on in major acquisitions.

- (1) The sponsor must address issues in the earliest planning stages identifying the project (e.g., resource change proposals, mission requirements analysis). This analysis continues in an iterative manner throughout the life cycle of the platform or equipment. The earliest acquisition documents (mission needs statements and operational requirements documents) will address any known M&P and T&TS requirements and constraints. The project manager will ensure the system design team receives ILS M&P and T&TS information promptly as changes occur and that the Integrated Logistics Support Management Team (ILSMT) is current on design changes. The project manager will regularly update the ILSP and any existing Logistic Support Analysis (LSA) data bases to facilitate this information sharing.
 - (2) The project manager must provide ILS M&P and T&TS data to the large manpower and staffing analysis. The sponsor's or project manager's contractor usually conducts an overall MPT analysis. The support program (e.g., ILS) data will be gathered from the ILSMT representatives (e.g., G-ENE, G-TES, G-ELM, G-ECV and MLC(v,s,t)). Other MPT programs (e.g., safety, human engineering) and the design team require access to this information. In the event a larger MPT data base is not maintained, direct access to the ILS data must be provided. Generally the project manager will maintain this data in a data base compatible with existing support program systems. When other data formats are not specified, it is recommended that data be maintained electronically in MIL-STD-1388-2B format. All parties concerned share responsibility to ensure manning, personnel and training issues are identified and resolved.
 - (3) The sponsor must identify any military and domestic contingencies which the platform may be required to support. Operation and support program managers must identify additional manpower requirements to meet these contingencies in accordance with reference (e).
- b. Personnel. The term "personnel" addresses the qualitative or descriptive aspects of the people required. Skills and particular requirements are addressed in this area (e.g., multi-gender berthing required, coxswain qualifications required, must be able

to lift 75 lbs, type 50 wpm). The project manager must identify personnel requirements for the support tasks required. Additionally, the project manager must work closely with the design team in finding alternative solutions to personnel problems induced by the design (i.e., display panels on test equipment in night vision environment, special packaging for hazardous material stored in manned spaces). Force managers and Commandant (G-P) provide additional personnel guidance.

- (1) Skill requirements shall be matched to billets. Appropriate qualification manuals, practical factor lists and Coast Guard courses are evidence of the skill level an enlisted billet. The Officer Billet Manual and Office of Personnel and Training's classification manuals will provide information regarding skill levels for officers and civilian personnel. Assignment of tasks to billets shall not be arbitrarily made.
 - (2) The appropriate force manager shall review the nature of the equipment and tasks being assigned as soon as this information becomes available, usually during the design phase. Appropriate unputs shall be provided to both the project manager and his/her program manager.
- c. Training. Training is the process used to establish the basic skill levels required to operate and support the equipment or system. There are frequently trade-offs available to reduce or eliminate training in the design process (e.g., built-in test devices can eliminate the need to train the operator on more sophisticated diagnostic techniques). Training may be accomplished by on the job experience, computer aided instruction, video cassette, classroom, as well as other methods. The Commandant (G-PTP) provides additional guidance in the area of training.
- (1) The project manager is responsible for identifying new training requirements. The project manager will initiate and conduct a preliminary training conference with concerned operations, facility, support and force managers. For non-major acquisitions, training program responsibility will usually be assumed by the appropriate operations or support managers following this preliminary conference. With major acquisitions the project manager will retain responsibility for developing a training program and follow the guidance set forth in reference (a). All project managers will insure training requirements have been identified and appropriate training plans published.

- (2) The project manager shall ensure required individual technical training (e.g., pipeline training) has been arranged and can be completed in time to ensure all team members are available for required operational training (e.g., damage control team training). The project manager must address the issue of Training Allowance Billets to support any identified pipeline training.
 - (3) Training plans must include support activities requirements. The project manager shall include the type desk personnel at Maintenance and Logistics Commands and equipment specialists at Supply Centers in orientation and initial technical training courses.
- d. ILS M&P and T&TS Data. When the sponsor or support manager has not specified procedures for logistics analysis and data collection, reference (d) and MIL-STD-1388-2B are recommended. LSA, as defined in the MIL-STDs and reference (d), provides a systematic and detailed analysis of all logistics issues. This process must be tailored to provide information specific to the project. Members of the ILSMT will provide existing Coast Guard data to the project manager. When a task analysis is not done, the M&P and T&TS sections of the ILSP shall address why it was not completed and describe what analysis has been or will be accomplished.

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Encl: (1) System Safety Concepts and Human Factors Engineering

SYSTEM SAFETY CONCEPTS AND HUMAN FACTORS ENGINEERING

1. System Safety Concept is the optimum degree of safety within the constraints of operational effectiveness, time and cost. Safety is attained through the specific application of management and engineering principles. Hazards are identified and the risk minimized throughout the service life of a major system or facility.

- a. Definitions.

- (1) Safety - The control of accidental loss of personnel, property, and/or process.
- (2) Hazard - A substandard condition or act with the potential to harm people, cause damage or loss to facilities, materials, and/or equipment, or lessening the ability to perform a prescribed facility function.
- (3) Mishap - An undesired event that results in harm to people, damage to property, or loss to process.

- b. Program Objectives.

- (1) Ensure appropriate hazard control measures are incorporated into the acquisition process for Coast Guard facilities in a timely and cost effective manner.
- (2) Ensure that hazards inherent to the acquisition and its intended use are eliminated or controlled to an acceptable level; i.e., inputs from program managers or their delegated competent authority.
- (3) Ensure the use of historical data for track record of product(s) if available. Incorporate lessons learned into procedures, training and new acquisitions.
- (4) Make effective use of designs, materials, production and testing. Testing should take into account safety features and potential for mishaps as well as reliability.
- (5) Minimize retrofits by advance planning in research and development.
- (6) Monitor acquisitions to ensure that the level of risk does not increase with systems modifications.
- (7) Confer with system safety subject matter experts in Commandant (G-K) if concerns arise in this area.

Encl. (1) to COMDTINST 4105.9

- c. The Acquisitions Approach.
 - (1) The designs for both major and non-major acquisitions should be subject to system safety objectives. Ensure that existing risks are minimized or eliminated, or that warning and protective devices are applied as needed for safe operation. Alternative products should exceed or be installed safeguards.
 - (2) System safety requirements are defined in MIL-STD 882C (January 1994). Applying these requirements can significantly reduce personnel and equipment losses. They reduce excessive waste generation by controlling the hazards before the product (and hazard) is mass produced or purchased. It is economical and efficient to draw upon that which is already proven to be effective and apply the same techniques to our existing processes.
- 2. Humand Factors Engineering (HFE). HFE is a discipline that is designed to optimize the relationship between technology and the human. It is designed to optimize the interaction between people and machine elements of the system with regard to the environment in which they come together and function.
 - a. Program Objectives.
 - (1) Increase productivity and reduce stressers through acquisitions that are designed in conjunction with HFE. This is accomplished by ergonomic designs, mechanical advantage and reduced stress levels associated with the environment that humans operate in. Program managers should provide these elements prior to acquisition when applicable.
 - (2) Decrease hazards and potential for mishaps due to inappropriate human and system interface which can bring on fatigue, mental and physical stress, confusion and other discomforts.
 - (3) Reduce potential for humans to cause damage to property and equipment by accident inputs, unnecessary access or incorrect procedures.
 - b. The Acquisitions Approach.
 - (1) Ensure that program managers take human factors requirements into consideration (when applicable) and contract for the same requirement prior to acquisition.

- (2) Ensure manufacturer and/or source are aware of and act on human factors needs as required to prevent post-acquisition conflict.
 - (3) Ensure that manufacturer and/or source of acquisition are meeting program manager and system requirements when they propose human factors concepts and designs.
 - (4) Confer with human factors subject matter experts in Commandant (G-E) and Commandant (G-K) to resolve any questions about HFE.
- 3. Integrating system safety and HFE into the integrated logistics support concept is essential for more cost effectiveness and safe, optimum performance in the workplace